

Lisbon Valley Copper Project Recommended Seed Mix (1/2006)

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M/039/048

Grasses:

Indian Rice Grass - *Oryzopsis hymenoides*

Blue grama - *Bouteloua gracilis*

Quickguard - *Triticum aestivum* x *secale cereale* (only in disturbed areas)

Thickspike wheatgrass - *Agropyron dasystachyum* substitute western wheatgrass-*Pascopyron smithii*

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Russian wildrye - *Psathyrostachys juncea* take out of mix (non-native)

Bottlebrush squirreltail, Squirreltail - *Elymus elymoides*

Sand dropseed - *Sporobolus cryptandrus*

Bluebunch wheatgrass - *Pseudoroegneria spicata* ssp. *spicata* take out of mix (not native to the region)

Galleta grass - *Hilaria jamesii*

Herbaceous Forbs:

Firewheel - *Gaillardia pulchella* or Indian Blanket Flower - *Gaillardia aristata* do not use

Firewheel (not native to the area) Indian Blanket Flower is okay

Scarlet globemallow - *Sphaeralcea coccinea*

Gooseberry-leaf globemallow - *Sphaeralcea grossulariaefolia* do not use (not native to area)

Common sunflower - *Helianthus annuus* or prairie sunflower - *Helianthus petiolaris*

Shrubs:

Fourwing saltbush - *Atriplex canescens*

Wyoming big sagebrush - *Artemisia tridentata* ssp. *wyomingensis*

Add winterfat-*Krascheninnikovia lanata* if desired

DESCRIPTION

Grasses:

Indian Rice Grass - *Oryzopsis hymenoides*

This species is a widely adapted cool season, native perennial, drought tolerant bunch grass adapted to elevations from 3,000 to 10,000 feet. Though it does best in upland and semi-desert climatic zones with sandy stony, gravelly, and shallow soils it is adapted to a wide variety of soils, with the exception of wet or poorly drained soils. It is also adapted to soils high in lime and is moderately salt and alkali tolerant. It is one of the more valuable grasses for domestic livestock, big game animals and upland game birds, providing excellent forage for spring and summer use. It is especially valuable for winter grazing because the plants cure well and lower plant parts remain somewhat green.

Blue grama - *Bouteloua gracilis*

This species is warm season, drought tolerant perennial and an open sod-former. Blue grama grows in bunches in the south, but as a sod-former in the north, at higher elevations or when frequently watered or closely grazed. Adapted to a broad spectrum of soils by thrives on medium textured, well-drained sites. Blue grama is the most drought resistant of the major grasses in the Great Plains and very resistant to grazing. Blue grama is highly palatable and nutritious year-round.

Variety: Hachita A very palatable strain with good forage value into the fall and winter. Excellent drought tolerance and ability to withstand grazing. (Released 1980, source of ecotype: Hachita, NM.)

Quickguard - *Triticum aestivum* x *secale cereale* (only in disturbed areas)

A sterile, non-reseeding annual developed from crossing wheat with rye. Use as a soil stabilizer and cover crop. Germinates and establishes rapidly but plants do not persist or reseed in successive years. Quickguard is ideally suited for cost effective erosion control and temporary cover. Quickguard Sterile Triticale does not produce a viable seed unless it is exposed to pollen from other triticales. This species is an excellent choice where short-term cover is desired.

Thickspike wheatgrass - *Agropyron dasystachyum*

Old nomenclature: *Agropyron dasystachyum*. This species is cool season, strongly rhizomatous, long-lived, drought tolerant, perennial sod-former similar in appearance to *Pascopyrum smithii* but ripens about 3 weeks earlier. Adapted to a wide range of sites but does best on well-drained soils. The palatability of this species is generally good year-round for livestock and wildlife.

Variety: Critana Developed for strong sodding ability in dry sites. Very strong seedling vigor — great for site stabilization. (Released 1971, source of ecotype: Havre, MT)

Notes: Mark Standard of the Pullman Washington Plant Materials Center said that because all three varieties (Critana, Bannock and Schwendimar) are of the same species, that there really is no difference in their drought tolerance. The difference is in the preference of each variety to the timing of the precipitation. For example, Critana, which was released from the Bridger, Montana Plant Material Center prefers a summer rain pattern where there are summer monsoons.

Schwendimar prefers a winter rain pattern, which includes winter rains (similar to the winter rains in the Northwest U.S.). Bannock was released out of the Boise Plant Material Center, and prefers early spring rains similar to those found in Boise

Russian wildrye - *Psathyrostachys juncea* (small amount)

Old nomenclature: *Elymus junceus*. This species is a cool season, perennial bunchgrass with an extensively developed root system. Adapted to fertile, fine textured soils. May be difficult to establish, but once established it is extremely drought tolerant. Starts growth in very early spring and, after ripening, produces abundant green forage throughout summer and fall. This species has excellent palatability to wildlife and livestock.

Variety: Bozolsky, Select Developed for vegetative vigor, leafiness, seed yield and seedling vigor. Proven to be significantly more vigorous and productive than Vinall. Winter hardy, drought resistant and widely adapted to western ranges. (Released 1984, source of ecotype: former USSR)

Bottlebrush squirreltail, Squirreltail - *Elymus elymoides*

Old nomenclature: *Sitanion hystrix*. This species is a cool season, very drought tolerant, short-lived perennial bunchgrass found on both deep and shallow soils. Easy to establish and often behaves as a pioneer species on disturbed sites. Bottlebrush provides good winter and spring forage to grass grazing animals and is especially useful for revegetation of drastically disturbed sites.

Variety: Sand Hollow Adapted to a wide range of soil types including sandy soils throughout the Great Basin and northwestern regions of the Great Plains. Good drought tolerance and an excellent seed producer. (Released 1996, source of ecotype: Gem County, ID)

Sand dropseed - *Sporobolus cryptandrus*

This grass is a warm season, drought tolerant, perennial bunchgrass adapted to most soils but thrives on sandy sites. Provides good palatability to livestock and wildlife but often considered an invader in the Midwest where grazing animals prefer it less than other grasses. Establishes easily and is widely used for controlling erosion on a wide variety of sites.

Bluebunch wheatgrass - *Pseudoroegneria spicata* ssp. *spicata*

Old nomenclature: *Agropyron spicatum*. This grass is a cool season, drought tolerant, long-lived, perennial bunchgrass widely distributed and adapted to most sites including thin nonproductive soils. Starts growth in early spring and has a relatively short cycle to maturity, then renews growth in fall. Bluebunch generally has good palatability to livestock and wildlife.

Variety: P-7 Developed to provide genetic diversity for semiarid to mesic sites. P-7 is long-lived, drought tolerant, highly palatable and considered the most genetically diverse and widely adapted bluebunch variety. (Released 2001, source of ecotype: various sites in North America)

Variety: Secar A low elevation, dryland ecotype with excellent drought tolerance and longevity. Matures early and produces numerous fine stems and leaves. (Released 1980, source of ecotype: Lewiston, ID)

Galleta grass - *Hilaria jamesii*

This grass is a warm season, rhizomatous bunchy sod-former occurring on a wide variety of deep soils. Starts growth early and will mature in early summer and again in early fall when moisture is available. Good palatability to livestock and wildlife. Galleta grass often occurs as a dominant or codominant throughout its range. This species is excellent for rangeland rehabilitation.

Variety: Viva Best known for the tough woody rootstock it develops. An exceptional soil binder, resists trampling and heavy grazing. Viva is very drought tolerant, surviving in areas with only 8 inches of annual precipitation. Viva is most useful as a reclamation plant for mine spoils, pipelines, and roadsides in CO, UT, NM, TX and AZ. (Released 1979, source of ecotype: Newkirk, NM)

Herbaceous Forbs:

Firewheel - *Gaillardia pulchella* or Indian Blanket Flower - *Gaillardia aristata*

This species is a drought tolerant annual that thrives in full sunlight. Red and yellow daisy-like flowers bloom May to July, along sandy plains and roadsides in desert areas. Firewheel does well from seed, is widely adaptable, and is recommended for use in mixtures or mass plantings throughout its range.

Scarlet globemallow - *Sphaeralcea coccinea*

This species is a drought tolerant perennial that thrives in full sunlight. Scarlet globemallow blooms April to August from valleys to foothills in dry open prairie grasslands. This species is

often found among pinyon and juniper, a palatable species relished by antelope, deer and livestock and occurs widely on sandy or fine-textured soils.

Gooseberry-leaf globemallow - *Sphaeralcea grossulariaefolia*

This species is a drought tolerant perennial which requires full sun. Orange flowers bloom May to August from valleys to foothills in dry, open, sometimes alkaline sites. Known to colonize roadsides, utility lines, or other disturbed areas generally from 3,000 to 7,000

Common sunflower - *Helianthus annuus* or prairie sunflower - *Helianthus petiolaris*

Shrubs:

Fourwing saltbush - *Atriplex canescens*

This shrub ranges from medium to tall, is drought resistant, deciduous or evergreen and adapted to a wide range of soils from near sea level to 8,500 ft. Fourwing is not tolerant of high water tables. Fourwing has excellent palatability to all classes of livestock and wildlife and provides excellent cover for birds and small mammals. *Since this plant occurs over such a wide range of ecotypes, it is important to plant seed that was harvested in similar environmental conditions, especially precipitation, temperature and elevation.*

Wyoming big sagebrush - *Artemisia tridentata* ssp. *wyomingensis*

Small, evergreen shrub from 1 to 3 feet tall, adapted to well-drained fertile or infertile shallow soils on benches, lower slopes and plains. Palatability is poor for cattle, fair for sheep and good for wildlife. Provides valuable cover for birds and small mammals.

Variety: Gordon Creek Selected for varietal release for its attractiveness as browse for wintering deer. Similar to the species in general in its habit of growth and site adaptability. (Released 1992, source of ecotype: Carbon County, Utah)